



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/163,259	09/29/1998	FRANK W. ADAMS	4167-13	9788
26584 7590 03/30/2010 OTIS ELEVATOR COMPANY INTELLECTUAL PROPERTY DEPARTMENT 10 FARM SPRINGS FARMINGTON, CT 06032				
EXAMINER				
KRUER, STEFAN				
ART UNIT		PAPER NUMBER		
3654				
MAIL DATE		DELIVERY MODE		
03/30/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/163,259

Applicant(s)

ADAMS ET AL.

Examiner

Stefan Krueer

Art Unit

3654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 9-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/C2)
- Paper No(s)/Mail Date (11 total).
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: See Continuation Sheet

Continuation of Attachment(s) 6). Other: JP-199721084 + Formal Translation.

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 January 2010 has been entered.

Claim Objections

2. **Claim 19** is objected to because in Line 11 "sidewall" lacks antecedent basis and is preferably expressed as "wall".

4. All claims should be revised carefully to correct all other deficiencies similar to the ones noted above.

5. ***The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.***

6. **Claim(s) 1 - 6 and 19 - 23** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al. EP Publication No. 0710618 in view of Yamamori JP Patent No. 409012084A and Aulanko et al. EP Publication No. 0688735 ("Aulanko").

7. **Regarding claim 1 and 20-23**, Aulanko et al. discloses an elevator system comprising:

8. a hoistway, referred to as shaft, defined by a surrounding structure;
9. an elevator car 1 and counterweight 2 located in the hoistway; and
10. a machine, having a drive motor 6 and a drive sheave 7, located between the elevator car 1 and a sidewall of the hoistway, the drive motor 6 drivingly coupling and suspending the elevator car 1 and counterweight 2 via the drive sheave 7 and at least

one rope 3, and the drive sheave 7 is positioned from the drive motor 6 along the sidewall and an axis of rotation.

11. Aulanko et al. is silent concerning at least one flat rope, wherein the flat rope is made from a reinforceable traction material and the drive sheave has an axis of rotation parallel to the sidewall, wherein the flat rope is reinforced with steel or fiber, and wherein the traction material is urethane or rubber.

12. Yamamori, as cited in applicant's Information Disclosure Statement, teaches a flat rope 1, wherein the flat rope is made from a reinforceable traction material 13, wherein the flat rope is reinforced with twisted steel wire 11a, wherein the high traction material is a polyamide resin and said flat rope is for applications including "... mine cables... vessel mooring, cranes, elevator suspension..." (Translation, Para. 0006) for the feature of a smaller-in-diameter traction sheave and therewith smaller associated "...machinery and equipment that use the rope..." (Para. 0018). Though Yamamori reviews an application of his inventive flat belt in the drive of loom heddles, the review of his flat rope in the field of looms is but one example in the application of his invention and solves "problems... in fields other than looms..." (Para. 0008, "...for example..." and Para. 0011, respectively).

13. Aulanko, as cited in applicant's Information Disclosure Statement, teaches an elevator system (Fig. 4) comprising:

14. a hoistway 51 defined by a surrounding structure;
15. an elevator car 54 and counterweight 55 located in the hoistway; and

16. a machine 1, having a drive motor and a drive sheave 4, located between the elevator car and a sidewall of the hoistway (not depicted, understood), shown in Figures 4 - 5, the drive motor drivingly coupling and suspending the elevator car and counterweight via the drive sheave and the drive sheave, which has an axis of rotation parallel to the sidewall, is positioned from the drive motor along the sidewall and the axis of rotation, for feature of saving space (Col. 1, L. 32 - 55).

17. It would have been obvious to one of ordinary skill in the art at the time of the invention to couple and suspend the elevator car and counterweight disclosed by Aulanko et al. via a flat rope as taught by Yamamori to facilitate the contact between the drive sheave and the suspension means.

18. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the axis of rotation disclosed by Aulanko et al. parallel to the sidewall and intermediate said sidewall and said elevator car as taught by Aulanko for savings in cross-sectional space as well as maximizing vertical space for travel of an elevator car.

19. It would have been obvious to one of ordinary in the art at the time of the invention was made to reinforce a flat rope with steel or fiber and provide a high traction material being urethane or rubber, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

20. **Regarding claim 2**, Aulanko et al. discloses first and second support columns 11, 11a located on opposite sides of a hoistway relative to each other, each of the

support columns 11, 11a extending vertically from a bottom portion to a top portion of the hoistway between the elevator car 1 and said sidewall of the hoistway; and

21. a support member 20 mounted on and extending generally horizontally between the first and second support columns 11, 11a at a top portion of the hoistway, and wherein the drive motor 6 is supported on the support member 20.

22. **Regarding claim 3**, Aulanko et al. discloses wherein the counterweight 2 is located underneath the support member 20 between the elevator car 1 and said sidewall of the hoistway.

23. **Regarding claim 4**, Aulanko et al. discloses a counterweight sheave 9 coupled to a top portion of the counterweight 2, and at least one elevator sheave 4 coupled to an underside of the elevator car 1, the rope 3 having first and second ends 13, 14 fixedly coupled at a top portion of the hoistway, the rope 3 extending downwardly from the first end 13, looping about the counterweight sheave 9, extending upwardly and looping about the drive sheave 7, extending downwardly and underslinging the elevator car 1 via the at least one elevator sheave 4, and extending upwardly and terminating at the second end 14.

24. **Regarding claim 5**, Aulanko et al. discloses wherein the at least one elevator sheave includes first and second elevator sheaves 4 located at an underside of the elevator car 1 and at opposite sides relative to each other.

25. **Regarding claim 6**, Aulanko et al. discloses wherein the first end of the rope 3 is coupled to the support member 20 at anchorage 13.

26. **Regarding claim 19**, Aulanko et al. discloses an elevator system comprising:

Art Unit: 3654

27. a hoistway, referred to as shaft, having a wall;
28. an elevator car 1 traveling within the hoistway
29. a counterweight 2 traveling within the hoistway;
30. one or more ropes 3 engaged with the elevator car 1 and counterweight 2 to suspend the car 1 and counterweight 2; and
31. a drive machine 6 located between the travel path of the elevator car 1 and the wall of the hoistway, the drive machine having a drive motor 6 and a drive sheave 7 and engaged with the one or more ropes 3 through traction to drive the one or more ropes 3 and thereby the car 1 and counterweight 2, wherein the drive sheave 7 is positioned from the drive motor 6 along the sidewall and an axis of rotation.
32. Aulanko et al. is silent concerning flat ropes, wherein the flat rope is made from a reinforceable traction material and the drive sheave has an axis of rotation parallel to the sidewall.
33. Yamamori teaches a flat rope; wherein the flat rope is made from a reinforceable traction material.
34. Aulanko teaches an elevator system comprising:
35. a hoistway having a wall (wall not depicted, understood);
36. an elevator car 54 traveling within the hoistway;
37. a counterweight 55 traveling within the hoistway;
38. a drive machine 1 located between the travel path of the elevator car and the wall of the hoistway, shown in Figures 4 - 5, the drive machine having a drive motor and a drive sheave 4 and engaged with ropes through traction to drive the ropes and thereby

Art Unit: 3654

the car and counterweight, and the drive sheave, which has an axis of rotation parallel to the sidewall is positioned from the drive motor along the sidewall and the axis of rotation.

39. It would have been obvious to one of ordinary skill in the art at the time of the invention to engage and suspend the elevator car and counterweight disclosed by Aulanko et al. with the flat rope as taught by Yamamori to facilitate the contact between the drive sheave and the suspension means in order to reduce drive capacity and associated size of hoist motor and drive sheave, for savings in space and operating costs.

40. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the axis of rotation disclosed by Aulanko et al. parallel to the sidewall as taught by Aulanko to further promote reduction in space for greater applicability to retrofitting existing structures as well as reducing loss of utility space of new structures.

41. **Regarding claim 8**, Aulanko et al. discloses the first and second support columns 10, 11, 11a respectively include a first guide member 10, the guide member 10 defining an elevator guide surface extending vertically therealong at least over a length of the support columns 10, 11, 11a corresponding to the path of elevator car 1 travel, and the elevator car 1 defining opposing surfaces shaped to be movably engagable with the elevator guide surface 10 as the elevator car 1 moves vertically along the support column 10.

42. Aulanko et al. is silent concerning each of the guide members defining an elevator guide surface extending vertically therealong at least over a length of the

support columns corresponding to the path of elevator car travel, and the elevator car defining opposing surfaces shaped to be movably engagable with the elevator guide surfaces as the elevator car moves vertically along the support columns.

43. Nevertheless, it would have been obvious to one of ordinary skill in the art at the time of the invention to make each of the guide members disclosed by Aulanko et al. to define an elevator guide surface corresponding to the path of elevator car travel, wherein the elevator car define opposing surfaces shaped to be movably engagable with the elevator car guide surfaces, as well known in the art for operability.

Response to Arguments

44. Applicant's arguments filed 19 January 2010 have been fully considered but they are moot in view of new grounds of rejection.

Conclusion

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Q. Nguyen, can be reached on 571.272.6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3654

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John Q. Nguyen/
Supervisory Patent Examiner, Art Unit 3654

/Stefan Kruer/
Examiner, Art Unit 3654
22 March 2010